



AMENDMENTS TO THE CLAIMS

Please amend the claims as follows. A complete list of all pending claims appears below.

1. (Amended) An attenuated *Salmonella* strain comprising a eukaryotic expression vector for the expression of a heterologous gene or heterologous gene fragment or an autologous gene or autologous gene fragment under the control of an eukaryotic promoter, ~~carried by the vector within an open reading frame, wherein the gene or gene fragment encodes a polypeptide, a protein and/or an antigen capable of inducing an antibody response and a T-cell response, wherein the T-cell response is biased towards an inflammatory T-helper response, and wherein the attenuation is suitable for a vaccination of vertebrates.~~

2. (previously presented) The *Salmonella* strain of claim 1, wherein the strain is a *S. typhimurium* strain.

3. (previously presented) The *Salmonella* strain of claim 2, wherein the strain is selected from the group consisting of *S. typhimurium* aroA SL 7207, *S. typhimurium* LT2, and *S. typhimurium* aroA544 (ATCC Accession No. 33275).

4. (previously presented) The *Salmonella* strain of claim 1, wherein the strain is a *S. typhi* strain.

5. (previously presented) The *Salmonella* strain of claim 4, wherein the strain is *S. typhi* Ty21a.

6. (previously presented) The *Salmonella* strain of claim 1, wherein the eukaryotic expression vector is derived from plasmid pCMV β , wherein the plasmid comprises:

- a) a structural gene of β -galactosidase (β -gal) under the control of a human cytomegalovirus (CMV) immediate early promoter,
- b) a splice donor,
- c) two splice acceptor sites between the promoter and the β -galactosidase gene, and
- d) a polyadenylation site of SV40.

7-8. (canceled)

9. (amended) The *Salmonella* strain of claim 1, wherein the heterologous gene is selected from the group consisting of an *Escherichia coli*- β -galactosidase gene (lacZ gene), a gene (hly gene) encoding a non-hemolytic truncated variant of a *Listeria monocytogenes*-listeriolysin gene (hly gene), and a gene (actA gene) encoding a truncated variant of a *Listeria monocytogenes*-actA gene (actA gene).
10. (amended) A vaccine comprising the a *Salmonella* strain of claim 1.
11. (withdrawn) A method for expression-screening of heterologous genomic DNA libraries or heterologous cDNA libraries for the heterologous gene or heterologous gene fragment or autologous gene or autologous gene fragment, transferred by means of the *Salmonella* strain according to claim 1, comprising the steps of: a) probing RNA for the presence of splice products derived from a splice donor and acceptors of the eucaryotic expression vector by infecting cells in vitro with the *Salmonella* strain according to claim 1, b) extracting the RNA, c) performing reverse transcriptase polymerase chain reaction of isolated RNA, d) isolating the splice products by gel electrophoresis, and e) sequencing the gene or gene fragment.
12. (withdrawn) A method for expression-screening of heterologous genomic DNA libraries or heterologous cDNA libraries for the heterologous gene or heterologous gene fragment or autologous gene or autologous gene fragment, transferred by means of the vaccine according to claim 10, comprising the steps of: a) probing RNA for the presence of splice products derived from a splice donor and acceptors of the eucaryotic expression vector by infecting cells in vitro with the vaccine according to claim 10, b) extracting the RNA, c) performing reverse transcriptase polymerase chain reaction of isolated RNA, d) isolating the splice products by gel electrophoresis, and e) sequencing the gene or gene fragment.
13. (withdrawn) A method of producing an attenuated *Salmonella* strain comprising a eucaryotic expression vector for the expression of a heterologous gene or heterologous gene fragment or an autologous gene or autologous gene fragment comprised by the vector within an open reading frame, wherein the attenuation is suitable for a vaccination of vertebrates, the method comprising the steps of: a) expressing genetic information from a heterologous DNA library or heterologous cDNA library or an autologous DNA library or autologous cDNA library as a gene or gene fragment by means of a eucaryotic expression vector carried by an

attenuated Salmonella strain, wherein the attenuation is suitable for a vaccination of vertebrates, b) vaccinating a vertebrate by oral, nasal, mucosal, intravenous, intraperitoneal, intradermal, or subcutaneous administration and gene delivery with the attenuated Salmonella strain according to (a), c) expression-screening heterologous genomic DNA libraries or heterologous cDNA libraries for the heterologous gene or heterologous gene fragment or autologous gene or autologous gene fragment transferred by means of the attenuated Salmonella strain according to (a), and d) recovering the Salmonella strain.

14. (withdrawn) A method of producing a vaccine for oral, nasal, mucosal, intravenous, intraperitoneal, intradermal, or subcutaneous gene delivery to vertebrates wherein the vaccine comprises an attenuated Salmonella strain comprising a eucaryotic expression vector for the expression of a heterologous gene or heterologous gene fragment or an autologous gene or autologous gene fragment comprised by the vector within an open reading frame, wherein the attenuation is suitable for a vaccination of vertebrates, the method comprising the steps of: a) expressing genetic information from a heterologous DNA library or heterologous cDNA library or an autologous DNA library or autologous cDNA library as a gene or gene fragment by means of a eucaryotic expression vector carried by an attenuated Salmonella strain, wherein the attenuation is suitable for a vaccination of vertebrates, b) vaccinating a vertebrate by oral, nasal, mucosal, intravenous, intraperitoneal, intradermal, or subcutaneous administration and gene delivery with the attenuated Salmonella strain according to (a), c) expression-screening heterologous genomic DNA libraries or heterologous cDNA libraries for the heterologous gene or heterologous gene fragment or autologous gene or autologous gene fragment transferred by means of the attenuated Salmonella strain according to (a), and d) recovering the vaccine comprising the Salmonella strain.

15. (withdrawn) A method of producing a protein as an expression product of an attenuated Salmonella strain comprising a eucaryotic expression vector for the expression of a heterologous gene or heterologous gene fragment or an autologous gene or autologous gene fragment comprised by the vector within an open reading frame, wherein the attenuation is suitable for a vaccination of vertebrates, the method comprising the steps of: a) expressing genetic information from a heterologous DNA library or heterologous cDNA library or an autologous DNA library or autologous cDNA library as a gene or gene fragment by means of a eucaryotic expression vector carried by an attenuated Salmonella strain, wherein the attenuation is suitable for a vaccination of vertebrates including humans, b) vaccinating a vertebrate by oral,

nasal, mucosal, intravenous, intraperitoneal, intradermal, or subcutaneous administration and gene delivery with the attenuated *Salmonella* strain according to (a), c) expression-screening heterologous genomic DNA libraries or heterologous cDNA libraries for the heterologous gene or heterologous gene fragment or autologous gene or autologous gene fragment transferred by means of the attenuated *Salmonella* strain according to (a), and d) recovering the protein.

16. (withdrawn) A method of producing an immune response to an attenuated *Salmonella* strain comprising a eucaryotic expression vector for the expression of a heterologous gene or heterologous gene fragment or an autologous gene or autologous gene fragment comprised by the vector within an open reading frame, wherein the attenuation is suitable for a vaccination of vertebrates, the method comprising the steps of: a) expressing genetic information from a heterologous DNA library or heterologous cDNA library or an autologous DNA library or autologous cDNA library as a gene or gene fragment by means of a eucaryotic expression vector carried by an attenuated *Salmonella* strain, wherein the attenuation is suitable for a vaccination of vertebrates, and b) vaccinating a vertebrate by oral, nasal, mucosal, intravenous, intraperitoneal, intradermal, or subcutaneous administration and gene delivery with the attenuated *Salmonella* strain according to (a).

17. (amended) The *Salmonella* strain of claim 1, wherein the gene or gene fragment encodes a polypeptide capable of inducing an antibody response and a T-cell response, wherein the T-cell response comprises production of CD8 T-cells and CD4 T-cells.

18. (amended) The *Salmonella* strain of claim 1, wherein the gene or gene fragment encodes a polypeptide capable of inducing an antibody response and a T-cell response, wherein the antibody response comprises production of IgG1, IgG2, and/or IgA antibodies.

19. (previously presented) The *Salmonella* strain of claim 1, wherein the vertebrates are humans.

20. (previously presented) The *Salmonella* strain of claim 1, wherein *Salmonella* is orally administered.

21. (amended) The *Salmonella* strain of claim 18-4, wherein the antibody response is induced after a single immunization.

22. (amended) The *Salmonella* strain of claim 17-1, wherein the T-cell response is induced after a single immunization.

23. (amended) The *Salmonella* strain of claim 1, wherein the heterologous gene is a gene (hly gene) encoding a non-hemolytic truncated variant of a *Listeria monocytogenes*-listeriolysin gene (hly gene).